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Relationships Between Reading Ability in Third Grade and Phonological Awareness in

Kindergarten

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctorate of Education in Educational Leadership

by

Melissa Pannell

May 2012

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Keywords: Phonological Awareness, Phonemic Awareness, Reading

ABSTRACT

Relationships Between Reading Ability in Third Grade and Phonological Awareness in Kindergarten

by

Melissa Pannell

The purpose of this study was to identify relationships that exist between reading ability in 3rd grade and phonological awareness in kindergarten. A second purpose was to identify specific prereading skills that best predict later reading success. This study used a quantitative research design to answer the research questions posed. The population for this research was 244 fourth grade students enrolled in 3 primary schools in a school system in Southwest Virginia. The data used for this research study were obtained from each student's score on the kindergarten Phonological Awareness and Literacy Screening and the 3rd grade Virginia Standards of Learning examination in reading. Four predictor variables (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) were evaluated to determine their level of predictability for later reading success. Independent samples t-tests were conducted to determine whether a significant difference in the mean score of the PALS and SOL examination in reading existed between male and female students. Pearson correlation coefficients were computed to determine whether a statistically significant relationship existed between the PALS and the SOL examination in reading. Subsequent Pearson correlation coefficients were computed to determine if a significant relationship existed between the PALS and the SOL

examination in reading for female and male students. Female students were found to have a higher mean score than male students on the kindergarten PALS. Female and male students tended to score about same on the 3rd grade SOL examination in reading. PALS score and SOL score were found to be significantly related suggesting that students with high phonological awareness scores in kindergarten tended to also have high scores on the 3rd grade Virginia SOL examination in reading. A Pearson correlation coefficient also indicated that female students with high kindergarten phonological awareness scores tended to have high scores on the 3rd grade Virginia SOL examination in reading. Rhyme awareness was identified as the best early predictor of later reading ability.

DEDICATION

To the students with whom I am called to work every day. You encourage me with your enthusiasm and desire to learn to read.

ACKNOWLEDGMENTS

My Lord and Savior, Jesus Christ: I give you all the glory for the accomplishments and blessings in my life.

My husband Michael Pannell: You are my first and only love. Thank you for your constant encouragement and support. I could not have done this without you.

My son Landon: My life changed for the better the day you were born. Thank you for filling my life with joy and laughter.

My mother Brenda Templeton: You were my first and best role model. Thank you for teaching (by example) the value of a good education.

Dr. Virginia Foley: Thank you for your patience! You helped me to believe that I could actually do this!

My dissertation committee- Dr. Virginia Foley, Dr. James Lampley, Dr. Eric Glover, and Dr. Edward Dwyer: Your guidance and encouragement through this process has meant so much.

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CHAPTER 1

INTRODUCTION

“Literacy is at the heart of basic education for all” (UNESCO, 2006, p.31). Creating literate environments and societies is essential for eradicating poverty and ensuring sustainable development, peace, and democracy (UNESCO, 2006). Parents send their children to school with the expectation that they will learn to read. Many children fulfill this expectation quite easily. According to Ehri and Roberts (2006) most children develop reading skills through their literacy experiences at home and in their kindergarten classrooms. Unfortunately the remainder of students who arrive at school lack quality preschool experiences that equip them with necessary prereading skills. These students quickly fall behind their peers. Clay reported that children reading below grade level in the early grades perform more poorly in subsequent grades (Clay, 1985). The Nation’s 2003 Report Card revealed that only 31% of fourth graders were performing at or above the proficient reading level (United State Department of Education, NCES, 2004). Reading problems were also reported as the most frequent reason why children were referred to special education and retained (UNESCO, 2006). Learning to read is the foundation to an education. It must become educators’ top priority to diagnose and correct reading problems at the earliest level possible (UNESCO, 2006).

One way to identify at-risk students at an early age is to look at correlational relationships between early prereading skills and later reading ability. Children enter kindergarten with a wide range of abilities and skills. Some children come to school with

a mastery of all 26 letters of the alphabet. Others cannot identify the first letter in their first name. Numerous studies have reported correlational relationships between various prereading skills and later reading ability (Gillon, 2004; Wagner & Torgeson, 1987). Wagner and Torgeson identified a child's level of phonological awareness as the best single predictor of success in learning to read (1987). Gillon (2004) found that measures of phonemic awareness were better predictors of early literacy abilities than intelligence scores, vocabulary, and socioeconomic level. Byrne and Fielding-Barnsley (1993) found that higher phonemic awareness skills in kindergarten corresponded with higher reading achievement. However the National Reading Panel reported that letter knowledge was one of the best school-entry predictors of how well children will learn to read (National Reading Panel Report, 2000). A student's concept of word in text can also be another reliable predictor of his or her later success in reading (Morris, Bloodgood, & Perney, 2003). The challenge for educators has been to sort through the massive amounts of research, identify the prereading skills that might predict later performance in reading, and incorporate more of those skills into classroom instruction.

Statement of the Problem

Research has shown that if a student is not reading on grade level by the time he or she enters 3rd grade then he or she may never read on grade level (Clay, 1985). Educators must address this deficiency in reading but waiting until third grade to remediate may prove detrimental. At-risk students should be identified in kindergarten through various screenings and checklists. Using research proven correlational skills assessments, teachers can begin to identify those students, who based on current skill

level, may have future reading difficulties. These students can then be targeted for early intervention strategies that can help them perform on grade level. The purpose of this study was to investigate the relationship between a student's reading ability in third grade and his or her level of phonemic awareness in kindergarten. A second purpose was to identify specific prereading skills that best predict later reading success.

Research Questions

Teaching a child to read is one of the most important jobs of an educator. The research conducted in this study was designed to provide helpful information to those who teach children to read. By investigating relationships between prereading skills and later reading ability, teachers could fine tune their instruction, focusing more heavily on the skills that better predict later reading success.

1. Is there a significant difference in the mean score on the kindergarten Phonological Awareness Screening between male and female students?
2. Is there a significant difference in the mean score on the third grade Virginia SOL examination in reading between male and female students?
3. Is there a significant relationship between students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading?
4. Is there a difference in the relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for female students?

5. Is there a difference in the relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for male students?
6. Can reading ability in third grade as measured by the Virginia SOL examination in reading be predicted from a linear combination of phonological awareness subtests (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) given in kindergarten?

Significance of the Study

On January 8, 2002, President Bush signed into law the No Child Left Behind Act of 2001, the most dramatic reform of the Elementary and Secondary Education Act since it was enacted in 1965. This federal legislation enacted standards based education reform based on the belief that setting high standards and establishing measureable goals can improve individual outcomes in education. The legislation also required states to assess students in basic skills in certain grades in order to receive federal funding for schools. Supporters of NCLB claimed the legislation encouraged accountability in public schools, offered parents greater educational options for their children, and helped close the achievement gap between minority and white students (United States Department of Education, NCLB, 2002). Many other educators claimed that the legislation created an enormous amount of pressure for teachers and students alike to produce good test scores (United States Department of Education, NCLB, 2002). If school pass rates do not meet state standards, the implications can be devastating. Now more than ever there must be a renewed focus on improving the instruction of children at risk for not learning to read

well (Santa & Høien, 1999). Schools cannot wait until third grade to discover that a child is not reading on grade level. Researchers and teachers must find a way to help (Clay, 1985). One way could be to focus on early intervention before children acquire a sense of failure and while the gap between those who are succeeding and those who are having difficulty is relatively narrow (Santa & Høien, 1999). Also by identifying struggling readers early, there could be time for remediation prior to the mandated state testing.

The difficult job of identifying and remediating at risk students resides solely on the teacher. Classroom teachers could benefit from this study because specific prereading skills will be identified that best predict later reading success. Teachers could be able to emphasize these skills in classroom instruction. It could also help teachers to identify at-risk students. Administrators could use the results to pinpoint specific assessments or screenings that will be required in prekindergarten or kindergarten.

Phonological awareness has been a topic in numerous literacy research (Gillon, 2004; Savage & Carless, 2004; Stuart & Colheart, 1988). Many of the studies I reviewed investigated a correlation between phonological awareness and reading success, but very few compared more than one prereading skill with reading ability. This study resulted in the comparison of four prereading skills as well as a summed phonological awareness level with later reading ability.

Definitions of Terms

The following definitions are specific to this study.

Phonological awareness-the capacity to reflect on the sound structure of spoken English (Ukrainetz, 2009)

Phonemic awareness-the ability to recognize and manipulate phonemes in oral Language (Ukrainetz, 2009).

Phonemes-the individual sounds in words (Ukrainetz, 2009)

Limitations and Delimitations

1. Sample selection for this study had to be limited to those students who had continuously enrolled at a particular school for 5 years encompassing kindergarten through fourth grade. These students were selected to ensure that scores from the kindergarten phonological awareness screening and the third grade standards of learning test in reading were available. This type of stable student might produce higher test scores than those of a transient one.
2. A limitation of this study is that it did not take into consideration the various preschool experiences of students included in this study.

Organization of the Study

Chapter 1 presents the introduction, statement of the problem, research questions, significance of the study, definitions of terms related to the study, and limitations of the study.

The literature review in Chapter 2 provides information regarding the history of reading and learning to read. A general description of phonological awareness was discussed as well as descriptions of prereading skills such as phonemic awareness, alphabets, and concept of word. Results from studies that investigated correlational relationships between prereading skills and later reading success were also presented.

The research methodology is presented in Chapter 3. This methodology included the gathering of data for the Fall Kindergarten Phonological Awareness and Literacy Screening and the third grade Spring Virginia Standards of Learning examination in reading for each student. Independent samples t-tests were conducted for research questions 1 and 2 to compare the mean scores on each set of data. Pearson correlation coefficients were computed on the data set to evaluate whether a linear relationship existed and to answer research questions 3, 4, and 5. A multiple regression was conducted to evaluate how well a group of predictor variables predict the criterion variable of reading ability in third grade and to answer research question 6.

The results of analyses and findings of the study are presented in Chapter 4. Chapter 5 contains a summary of the study and provides conclusions and recommendations for further research.

CHAPTER 2

REVIEW OF LITERATURE

In 2006 UNESCO reported that “literacy for all is at the heart of basic education for all and creating literate environments and societies is essential for achieving the goals of eradicating poverty, reducing child mortality, curbing population growth, achieving gender equality and ensuring sustainable development, peace, and democracy” (UNESCO, 2006, p.31).

Educators would have to agree that learning to read is the most important aspect of a child’s education. Elementary school teachers have spent the majority of the school day engaged in reading instruction. Most remedial and afterschool programs as well have been literacy centered. Even though so much time and energy has been devoted to reading instruction in American classrooms, it has not been enough. The Nation’s 2003 Report Card revealed that only 31% of fourth graders are performing at or above the proficient reading level (United States Department of Education, NCES, 2004).

With statistics such as these there has been a need for research in the area of reading. It has been only through research that teachers obtained insights into how students learn, which methods were most effective, and what accommodations could be made to help all students learn to read. Schools could not wait to remediate struggling readers when it was too late. Schools had to identify the relevant aspects of children’s early performances that might predict later performances on school tasks. These types of prescreenings could be used to identify the existence and types of additional needs some children will require in order to make successful interventions (Desforges, 1989). This

type of preassessment could be used for wide resource planning, accountability, budget determination, and school improvement.

Historical Perspectives

Schools have been, and continue to be, the sites in which most people acquire their core literacy skills in reading, writing, and arithmetic. But learning to read has had a diverse and emergent history. In the mid 19th century, only 10% of the world's adult population could read or write. At the dawn of the 21st century, it had been estimated that 80% of adults world wide could read and write at some minimum level (UNESCO, 2006).

The earliest roots of learning to read were quite different from the practices of today. Learning to read was not an aim in itself. The primary purpose was to gain religious knowledge (Chartier, 2008). Families spent a significant amount of time teaching children to read from religious texts in order to teach their children about the history of their religion. Another significant difference among today's reading practices was in the reading style. The model for good oral reading was not at all the fluent reading aimed at today, but as in Latin dictation (Chartier, 2008).

As was the case in many countries like Sweden and Finland, the Lutheran Church authorities relied on families to teach their children to read. Members of the clergy were obliged to check the reading proficiency of both adults and children in annual examinations. Privileges such as being confirmed and getting married were held until a person could read and repeat religious catechisms (Chartier, 2008). Even long ago the ability to read was recognized as a foundational life skill but the differing perceptions of

learning to read were evident at this time. Pupils never had to read a new text alone or explain what it meant. Reading was thought to be a collective practice (Chartier, 2008).

The first debate on teaching methods for reading came from the privileged classes during the Age of Enlightenment in England and France. Originally students had been memorizing a written text from hearing it recited, then learning to read the text. In a new method students would need to read a new or unheard text. In order to read all the words necessary, children learned syllabic combinations. This process took time and led to the disgust and boredom of children (Chartier, 2008). A system of syllabaries was created that provided columns of syllables of words classified according to their length in order to facilitate reading difficulties. Chartier commented that “this method was used to practice the reading of words and sentences which made up no text but trained in faultless deciphering” (Chartier, 2008, p. 15). The New England Primer, which was introduced to the American colonies in 1760, used these systems of syllabaries.

In the 1800s the American Spelling Book replaced the New England Primer as the foundational reading text book. Patriotic and moral catechisms replaced religious ones that had always been used. This new textbook written by Noah Webster was used to “normalize American pronunciation, fix the spelling and unify the country through its language as well as by its institutions” (Chartier, 2008, p. 20). Webster chose to use prose instead of verse because he feared the “harmful consequences of oral memory that he considered mechanical” (p. 21). The slow syllable reading that was widely used for religious reading was then considered defective and that of a beginner or someone illiterate (Chartier, 2008). Fluency began to be an important part of reading and learning to read. McGuffey published a new type of primer in the late 1800s in which students

began to read syllables, words, and sentences at the same time. This primer led the way for more modern methods of reading instruction.

Throughout the history of reading acquisition reading texts went through three stages. Chartier (2008) identified these stages as “memorized religious content, a wider array of lay content for remembering, and finally to texts for children with no memorable content, constructed only to practice reading and control pupils’ skills” (p. 27). Huey (1908) is one of the first accounts of the process of reading, published over 100 years ago. We have made large gains in the understanding of the reading process since. His words still ring true, as he described that it is a “life’s work, to learn how we read” (Chartier, 2008, p. 56)

Progress in printing methods and cheaper costs of paper led the way for a graphic alphabet book for students. Beginning readers must have been familiar with the alphabet and the alphabetic principle, the idea that letters code phonological information, and that there is a systematic relationship between printed words and their pronunciations (Byrne, 1998).

Phonological Awareness

The component of oral language that has been most closely associated with beginning reading is phonological awareness, “the metalinguistic skill that allows us to mentally categorize, analyze, and compare sounds in spoken words or non words” (Nation, 2008, p. 1).

Savage and Carless defined phonological awareness as the “capacity to reflect on the sound structure of spoken English, and is evidenced in tasks such as segmenting and

blending speech sounds within a syllable, deleting or adding speech sounds to and from words or in detecting speech sounds consistencies across words” (Savage & Carless, 2004, p.15). Phonological awareness has been a very important topic in early childhood education. It has been an important skill that many students were lacking as they begin their educational journey. Schools normally require kindergarten students to undergo a phonological awareness screening within the first 30 to 60 days of the year. Over the past 30 years, much research has stated that measures of phonological awareness can predict children’s reading. Wagner and Torgeson concluded that phonological awareness is the best single predictor of success in learning to read (1987). This statement has held true for English as well as French (Alegria, Morais, & Pignot, 1982) and other languages. The relationship has held true even when extraneous variables such as age, language ability, IQ, social class, and memory are controlled (Bradley & Bryant, 1985). Gillon (2004) found that measures of phonological awareness are better predictors of early literacy abilities than intelligence scores, vocabulary, and socioeconomic level. Much research has proven that assessing phonological awareness in young students can be very predictive of reading skills. Many studies have involved the predictive validity of phonological awareness measures. This type of information could be very useful for the future education of students. It could be valuable data that can be used for student placement and tracking.

Stuart and Coltheart (1988) conducted a study in which children were administered a phonological awareness test battery at ages 4 and 6 and tested their reading ability at the end of every year for 4 years. They found that the battery of phonological awareness tests were able to predict their reading age every year. Tymms

(1999) found that a baseline phonological awareness assessment was a strong predictor of reading ability in second grade.

Phonological awareness measures have been perhaps the best predictors of reading comprehension. The potential utility of this predictor could be enhanced as evidence from metaanalysis indicates that training in phonological awareness significantly improves reading (Ehri, Nunes, Schuster, Shanahan, Willows, & Yaghoub-Zadeh, 2001). Therefore it has been important for classroom teachers to integrate training in phonological awareness into classroom instruction. But teachers also need to know which aspect of phonological awareness on which to focus in order to improve children's reading.

Phonemic Awareness

Interest in phonemic awareness has increased as researchers have attempted to study early literacy development. In a position statement from the Board of Directors of the International Reading Association, the authors stated "Phonemic awareness is typically described as an insight about oral language and in particular about the segmentation of sounds that are used in speech communication" (International Reading Association, 1998, pg.1). The study of phonemic awareness has not been new to the field of literacy but recently it has gained wide attention. For over 50 years discussions and debates have taken place regarding phonemic awareness. In the 1940s some psychologists noted that children with reading disabilities were unable to differentiate the spoken word into its sounds and put together the sounds of a word. Research such as the First Grade Studies surfaced that pointed to the important relation between sound

awareness and learning to read. Relevant longitudinal studies of reading acquisition have demonstrated that the acquisition of phonemic awareness is highly predictive of success in learning to read. Many studies have indicated that “phonemic awareness abilities in kindergarten appear to be the best single predictor of successful reading acquisition” (International Reading Association, 1998, pg. 1).

Several decades of research have established the critical role of phonemic awareness in the development of beginning readers (Manyak, 2008). Phonemic awareness has been defined as the ability to recognize and manipulate phonemes, the individual sounds in words (Ukrainetz, 2009). The term has also been defined as the understanding that words are composed of sounds that are separable and maipulable (Ukrainetz, 2009). It has been vital that teachers understand phonemic awareness and teach it effectively. Inadequate phonemic awareness has led to lags in the acquisition of word decoding, which impaired reading comprehension and reading fluency, resulting in long lasting, pervasive reading difficulties (Stanovich, 2000).

Two meta-analyses found phonemic awareness to be very teachable across a range of abilities and ages, with beneficial effects on reading and spelling (Bus & Van Ijzendoorn, 1999; Ehri et al., 2001). The studies also found that the impact of phonemic awareness instruction compared to normal classroom instruction was moderate to large on phonemic awareness, moderate on reading and spelling, and small on long-term reading performance.

Explicit phonemic awareness instruction has been most beneficial to weaker learners. Hatcher and Hulme (1999) conducted a large sample study of reading

instruction with typical and at-risk preschoolers. Classes were randomly assigned to a phonics-based reading instruction condition versus the reading instruction plus three variations of phonological awareness instruction. Results showed no differences among the four conditions for the typical learners in a kindergarten follow-up but sustained significant benefits for the at-risk learners.

A study conducted by Byrne and Fielding-Barnsley (1993) also confirmed the benefit of phonemic awareness training in at-risk learners. These researchers found that higher phonological awareness skills in kindergarten still corresponded with higher reading achievement, but many of the higher achievers in the control group had gained phonemic awareness without explicit instruction. Stronger learners have been able to acquire phonemic awareness implicitly from reading and writing experiences, weaker learners need direct explicit instruction (Byrne & Fielding-Barnsley, 1993).

Research indicated that children enter school with large individual differences in the experiences and competencies important in learning to read (Chapman, Prochnow, & Tunmer, 2009; Nicholson, 2003). These reading related skills included receptive vocabulary, familiarity with book language, and basic understanding of concepts and conventions of printed language, knowledge of letter names and sound-letter relationships, and sensitivity to the subcomponents of spoken words. All of these skills are introduced at home prior to entering school through reading aloud, alphabet books and games, and nursery rhymes, etc. Children who possessed higher levels of these skills upon entrance to kindergarten benefit more from reading instruction, learn to read sooner, and read better than children who do not (Lonigan & Whitehurst, 2001). Although some children possessed higher levels of these prereading skills, all children possessed the

skills at some level. The question that arose is which prereading skill is the best predictor of reading ability.

Shankweiler and Fowler (2004) reviewed research regarding the role of phonological awareness in learning to read. They concluded that “phoneme awareness is key to reading an alphabetic system” (p. 488), and “explicit, systematic instruction in the code relating spellings to pronunciations is necessary for most children” (p. 493).

Existing research has suggested that phoneme segmentation skill is a better predictor of early progress in learning to read than rhyming skill or vocabulary knowledge (Hatcher & Hulme, 1999). According to Juel (1998) children who lacked phoneme segmentation and blending skills upon entering first grade were likely to be poor readers in fourth grade. Studies have also shown that the teaching of segmentation and blending skills improve reading comprehension. Training in phoneme segmentation and blending resulted in improvement in further reading ability in kindergarten children (Frost, Lundberg, & Peterson, 1998). A study conducted by Cornell and Yeh (2008) stated that instruction emphasizing phoneme segmentation and blending was more effective in developing phoneme segmentation and blending ability than instruction emphasizing either rhyming or vocabulary. This type of direct instruction promoted phoneme segmentation skills and later reading ability better than instruction in other reading areas.

Letter Recognition

One of the most basic areas of early reading instruction has been pure alphabets. Parents have had the expectation that before their child learns to read, that child will need

to learn to recognize the letters of the alphabet. Is alphabet recognition a product of learning to read or a prereading skill?

The National Reading Panel reported that letter knowledge was one of the two best school-entry predictors of “how well children will learn to read during the first two years or instruction” (National Reading Panel, 2000, p. 7). The results of several studies suggested that knowledge of the names of the letters of the alphabet plays an important role in reading acquisition. Studies by researchers have shown that preschool children’s knowledge of letter names is among the best predictors of their future reading success (Blatchford & Plewis, 1990).

In a study by Cardoso-Martins, knowledge of the names of the letters of the alphabet was found to be even more strongly correlated to later success in reading acquisition than either intelligence or phonemic awareness (1995). Letter name knowledge has played an important role in the acquisition of reading. Many researchers such as Ehri, Richmond-Welty, and Tincoff have tried to discover why it is so important. Letter name knowledge has helped children connect print to speech (Ehri, Richmond-Welty & Tincoff, 1996). Children who know the names of the letters may be able to notice relations between letters in spellings and letter names in the pronunciation of some words and begin to understand the sound symbolizing function of letters in spellings (Ehri et al., 1996). Ehri and Wilce (1985) conducted a study to determine when beginning readers move from using visual to visual-phonetic cues in learning to read. Their findings suggested that mastery of the letters of the alphabet is the key factor that enables beginners to learn to read by processing and remembering sound-letter relations in words and moving from being prereaders to being readers.

Research has shown that children benefit more from phonological awareness training when the intervention also includes letter knowledge training as compared to when it does not (Oullette & Senechal, 2008). Ehri et al. (1996) found 18 studies of phonological awareness training that included a letter name knowledge component. They reported that the studies with a letter knowledge training part had an overall effect size that was statistically significantly greater than the studies that did not. The researchers argued that letter training combined with phonological awareness training allows children to move from the abstract to the concrete with letters (Ehri et al., 1996). One study indicated that children given training in phonological sensitivity and/or alphabetic coding show superior outcomes on measures of comprehension and text reading as well as word recognition (Stanovich & Stanovich, 1995).

Concept of Word

A student's ability to identify letters has been a reliable predictor of his or her later reading success (Adams, 1990; Snow, Burns, & Griffin, 1998). A student's concept of word in text could also be another reliable predictor of his or her later success in reading. Literacy research shows that concept of word development serves as a valid and reliable kindergarten predictor of first grade reading achievement (Morris et al., 2003). The definition of concept of word has been considered much more than simply matching speech to print. It has actually been the culmination of a student's automatic knowledge of sound-letter relationships, their ability to isolate beginning consonant sounds, and their ability to remember words in isolation that were viewed previously in text (Flanigan,

2007). Instruction on concept of word should be incorporated more into daily instruction because it will strengthen students' speech to print match, and develop students' alphabetic knowledge, phonemic awareness, and knowledge of words in print. All this evidence suggests that more attention should be paid to both identifying students' stages of concept of word development and incorporating concept of word instruction into daily lessons.

Rhyme Awareness

Another prereading skill that has been emphasized in early childhood education is rhyming. The most useful spelling patterns for beginning readers are rhymes, also known as word families or common phonograms. Readers who can perceive a rhyme in one word they decode can then apply that knowledge to other words with the identical spelling pattern (Nicholas, Rasinski, & Rupley, 2008). Rhyming is a form of phonological awareness based on the onset and rhyme units of sound (Treiman, 1992). Research on phonological awareness suggests that there are at least four units of sound within words: syllables, onsets and rhymes, and phonemes (Treiman, 1992).

Many studies (Bradley & Bryant, 1983; Ellis & Large, 1987; Lundberg, Olofsson, & Wall, 1980) have identified the prereading skill of rhyme awareness as the best predictor of reading ability. Greaney and Tunmer (1996) found that poor readers who received training in rhyme awareness increased their reading ability compared to poor readers who received training in the use of context clues. Correlational studies (MacLean, Bryant, & Bradley, 1987) have suggested that consistent exposure to rhyme during the preschool years enhances early reading skills. Bradley, Bryant, Crossland, and

MacLean, (1990) also stated that children who have had the most exposure to nursery rhymes as toddlers and preschoolers perform best on phonological discrimination and phonological production tasks. As shown here, a great amount of research has been conducted on the prereading skill of rhyme awareness and its use as a predictor of later reading ability.

Whole Language Versus Phonics

Many research studies have suggested a strong relationship between phonemic awareness and reading achievement (Adams & Bruck, 1995; Beck & Juel, 1995). The Great Debate about the role of phonics in beginning reading instruction has been alive and well in current research. The 1950s (Flesch, 1955) and 1960s (Chall, 1967) controversy about whether reading instruction should involve a phonics or a look-say approach has evolved into a contemporary phonics versus whole language debate. The whole language versus phonics argument has deep historical roots, going back at least to the early 20th century when Gray and others argued for greater balance in elementary reading programs, which, at that time, involved heavy emphasis on intensive phonics instruction (Baumann, 1998).

A significant figure in literacy education at the time, Paul McKee, described the controversy between phonics and whole language as a problem of which more disputes have centered than any other (McKee, 1934). Chall (1967) the author of *In Learning to Read: The Great Debate*, claimed that direct, systematic instruction in phonics was necessary for children to develop word identification skill and reading fluency in an efficient manner.

The First Grade Studies (Bond & Dykstra, 1967) found that systematic phonics instruction was related to success in decoding and fluency but found variation in achievement across and within classrooms, which continued the debate. In the 1980s, there had been a rise of whole language instruction. At this point the great debate of phonics versus whole language achieved a visible and volatile status among educators (International Reading Association, 1997). The role of phonics in reading instruction had become a political issue just as much as an educational one (Baumann, 1998) being fueled by the claim that whole language instruction has caused a decline in United States students' reading achievement.

State boards of education recommended significant changes to reading and language arts curricula and instruction on the assumption that no phonics had been taught (Baumann, 1998). Department of education policies were developed in many states that mandated that phonics be included in the elementary curriculum (Monaghan, 1997). Nevertheless, large-scale longitudinal achievement data at this time had not supported the assertion that there had been a decline in reading achievement since the adoption of whole language instruction in schools (Berliner & Biddle, 1995).

Stanovich and Stanovich (1995) claimed that 2 decades of research have shown favor of bottom-up instructional models. Stanovich and Stanovich concluded that some children in whole language classrooms do not pick up the alphabetic principle through immersion in print and writing activities, and they need explicit phonics instruction.

The continuing debate of phonics versus whole language instruction has continued to be a very important topic in education, particularly educational leadership. Principals need to understand both systems and promote the use of the best of both along

with other effective reading programs in order to promote literacy within their schools. Educators have been searching for the single best way to teach all children to read for more than a century (Carbo, 1995). Both phonics based and whole language instruction have enjoyed popularity, failure, and pendulum swings throughout the years (Carbo, 1995).

Phonics has been described as an important part of reading and writing experiences, an essential cueing system that children use along with other kinds of information (Goodman, 1986). Proponents of phonics-centered classrooms have emphasized that explicit systematic phonics lessons are necessary for learning to read and write (Adams & Bruck, 1995; Chall, 1967). The phonics centered approach has involved direct instruction and student practice of specific phonics concepts (Stahl, 1998).

Goodman (1986) has described whole language as a philosophy rather than as a series of prescribed activities. Whole language instruction has consisted of activities that will encourage children to develop their skills at their own developmentally appropriate pace (Goodman, 1986). Whole language programs have had an emphasis on literature, composition, inquiry, and process centered instruction (Avery, 1993). Advocates of whole language have viewed phonics as only one of the cueing systems that children use along with syntactic, semantic, and pragmatic information during reading and writing (Goodman, 1986). Phonics instruction in whole language classrooms has been embedded in ongoing reading and writing activities. Goodman claimed that instruction in whole language classrooms is shaped by the teacher's understanding of each child's development in written language and supports his or her individual language learning processes. In a whole language classroom reading and writing are taught as meaning

centered processes through experiences with connected text. Embedded skill instruction is planned within meaning centered, functional reading and writing experiences (Dahl, Scharer, Lawson, & Grogan, 1999).

The Brown University Child and Adolescent Behavior Letter (1996) concluded that children cannot learn to read without an understanding of phonics. The question that has been asked is not whether to teach phonics or whole language but how to teach phonics in context rather than in isolation (Brown University Child and Adolescent Behavior Letter, 1996). The key to literacy instruction is a balanced approach and attention to students' individual needs (Brown University Child and Adolescent Behavior Letter, 1996). According to Carbo (1995) it has generally not been advisable to use a single approach to reading exclusively. A combination of styles and approaches has been necessary to accommodate the different learning styles among students learning to read (Carbo, 1995).

Preschool Literacy

Literacy includes all the activities involved in speaking, listening, reading, writing, and comprehending both spoken and written language (National Institute for Literacy, 2003). In 2002 President George W. Bush signed into law the No Child Left Behind Act, which emphasized the importance of the development of children's literacy skills beginning in the early years. This act implemented programs such as Reading First and Early Reading First in order to promote literacy during the first years of formal schooling (National Institute for Literacy, 2003). There has been a growing concern that many of the nation's children begin kindergarten without the necessary foundation to

fully benefit from school instruction (United States Department of Education, 2002). Several basic skills should be emphasized and introduced during the early childhood years. Early childhood educators should create activities to promote the development of phonological and print awareness (Moore, Yin, Weaver, Lydell, & Logan, 2007).

The No Child Left Behind Act has also increased performance and accountability measures, resulting in greater academic pressure for young students. Early identification and intervention for preschoolers at risk for reading failure has now become a very important topic (Silliman, Wilkinson, & Brea-Spahn, 2004). Although expectations have been considerably increased, there has been widespread recognition that children arrive at the critical kindergarten juncture with variable states of readiness and that the quality of early learning experiences and environments contributes substantially to that variability (Shonkoff & Phillips, 2000). Substantial research has supported targeting emergent literacy skills in preschool as a means of impacting subsequent reading development (Bailet, Repper, Piasts, & Murphy, 2009). Combining phonological awareness and alphabet knowledge as a focus has reflected current best practices for preschool emergent literacy instruction (Justice, Chow, Capellini, Flanigan, & Colton, 2003). Justice et al. (2003) studied the effects of a 12-week emergent literacy intervention with 18 preschoolers from a low-income, urban preschool center. Results showed significant early literacy gains following intervention, particularly in relation to the experimental, explicit instruction segment.

The fact remains that too many young children enter kindergarten inadequately prepared for literacy instruction. West, Denton, and Germino-Hausken (2000) conducted a study with findings that only 29% of entering, first time kindergarteners could

recognize beginning sound-letter relationships. Once children fall behind, it has been shown to be much more difficult to catch up (Shaywitz & Shaywitz, 2004). Reading experts (Juel, 1998; Stanovich, 1986) have noted that many reading difficulties are easier to prevent than to remediate.

Head Start programs throughout the nation have adopted quality standards that mandate children must develop early phonological awareness and letter knowledge skills prior to entering kindergarten to reduce the risk of future academic failure (United States Department of Health and Human Services, Administration for Children and Families, 2000). Even though access to early literacy instruction is important for all children, it is crucial for children with limited literacy experiences or skills to receive literacy intervention (Adams, 1990). Children from low income or culturally diverse backgrounds are at risk for literacy difficulties (Roseberry-McKibbin, 2001).

With early identification these children can be successfully remediated. Several studies have demonstrated that early literacy skills can be trained (Byrne & Fielding-Barnsley, 1995; Wagner, Torgeson, & Rashotte, 1994). Early literacy experiences can reduce problems associated with poor skills and low motivation for literacy activities (Catts, 1997). Even though attendance in preschool programs has been linked to higher emerging literacy scores (National Institute for Literacy, 2003), there is still a need for more innovative approaches and greater participation.

Gender Differences

Many factors have been identified in explaining students' achievement in reading. Several studies have indicated gender, self-esteem, motivation and interest towards reading, parents' education, socioeconomic and culture capital, situation at home, as well as ethnicity being factors influencing reading literacy level (Elley, 1994; Fredriksson, 2002; Lietz, 1996). West et al. (2000) determined that family reading activities during preschool years have a great impact on later reading achievement. Wagner et al. (1994) stressed the importance of home factors in reading literacy claiming that the home environment should stimulate or encourage reading. Many studies have indicated that reading aloud to preschool children has a positive effect of reading at school age (Lyon, 1999; Snow et al., 1998).

Boys and girls have shown differences in many ways-physical activity level, self-control, and performance levels in reading, writing, and math (Eliot, 2010). Boys' brains are about 10% larger than those of girls, and boys' brains finish growing a year or two later during puberty (Lenroot et al., 2007). Boys and girls have shown differences in self-regulatory behavior, with girls showing better ability to sit still, pay attention, and delay gratification (Eliot, 2010). But according to Hyde (2005), there is much more overlap in the academic and even social-emotional abilities of the genders than there are differences.

Regardless of lack of scientific differences, striking gender gaps in academic performance has been shown. Girls have outperformed boys in reading and boys have outscored girls in math on the National Assessment of Educational Progress in every year assessed since 1971 (United States Department of Education, 2004). A recent analysis of

Program for International Student Assessment data found that higher female performance in math correlates with higher levels of gender equity in individual nations (Eliot, 2010). These findings suggested that environmental factors are important in shaping gender gaps. It has been shown that gender differences become rapidly magnified by a culture that sees them and encourages them to see themselves as fundamentally different creatures (Eliot, 2010).

The differences in boys and girls began early in life when they first began to play. Through this early play children have developed the skills they will bring into the classroom. Girls have spent more time talking, drawing, and role playing, whereas boys have spent more time moving, targeting, building, and role-playing (Eliot, 2010). Boys eventually have scored higher in math, science, and mechanical work due to this play experience unlike girls who have excelled in areas such as phonological awareness, a key stepping stone for learning to read, due to their extra conversation with peers and parents (Eliot, 2010).

Early or emergent literacy has been described as the idea that literacy is a developmental process, beginning at birth, and that children benefit from meaningful verbal and print interactions with adults (Tilley & Callison, 2005). Children do not magically turn into readers when they enter kindergarten. Readers are created a page, a story, a conversation at a time from birth (Tilley & Callison, 2005). Young girls have tended to have greater exposure to new words, story structure, and print conventions-all components of early literacy and studies have consistently shown that early literacy activities matter (2005).

The PIRLS 2001 International Report: IEA's Study of Reading Literacy Achievement in Primary Schools reported that in each of the 35 countries that reported data, a positive correlation exists between early literacy activities and reading achievement levels at fourth grade (Tilley & Callison, 2005). In all 35 countries in the PIRLS study, girls outperformed boys in reading (Tilley & Callison, 2005).

Many reasons for gender differences in reading ability have been stated in research. Holbrook (1988) claimed that physiological-maturational and cultural-societal factors may be related to male deficits in reading skills.

Increased levels of fetal testosterone delaying the development of the left-brain hemisphere (Geschwind & Behan, 1982) have caused males to tend to perform better on tasks requiring simultaneous visual processing and worse on tasks involving sequential auditory processing (Naour, 2001). A deficit in this type of processing skill has been shown to affect early literacy skill development by impairing students' ability to learn and perform sequentially oriented phonetic skills that are critical to prereading skills (Aaron, 1982).

Alternative research has suggested that environmental or cultural influences cause gender differences in reading skills (Leinhardt, Seewald, & Engel, 1979). Leinhardt et al. (1979) found support for the differential response theory that claimed that teacher behavior towards students is influenced by both the behavior of a particular student as well as the teacher's assumptions about the student. The theory states that teachers may hold higher expectations for females that turn into self-fulfilling prophecies (Bank, Biddle, & Good, 1980). Leinhardt et al. (1979) found that teachers made more academic

contact and spent more time with girls during reading instruction and with boys during math instruction.

Gender differences in reading achievement could also be influenced by interest or motivation (Brozo, 2002). Coles and Hall (2001) found that boys generally prefer reading nonfiction and informational material but fictional reading has been predominantly used during elementary school reading instruction.

Chatterji (2006) conducted a study of 2,296 kindergarten and first grade students and found that males performed below females on measures of print familiarity, letter recognition, beginning and ending sounds, rhyming sounds, word recognition, receptive vocabulary listening comprehension, and comprehension of words in context. Males scored 0.17 standard deviation units below females at the beginning of kindergarten and fell to 0.31 standard deviation units at the end of first grade, revealing that gender differences are present when children enter school and only become larger by the end of first grade (2006).

Recent researchers have stated that gender differences are rooted in the differential brain wiring, maturation rates, and chemistry of boys (Sommers, 2000). Sommers (2000) theorized that boys and girls are so biologically different that they require specific gender strategies to ameliorate the detrimental effects of educational strategies and practice geared towards girls. Noble and Brafford (2000) have suggested strategies to mediate the gender gap such as the use of boy-friendly materials, the introduction of more male role models and teachers, and exposure to single-gender classrooms and schools.

Educators agree that motivation plays a central role in literacy development (Gambrell, 1996). Phonemic awareness, phonics, vocabulary, fluency, and comprehension allow students to be skillful and strategic readers, but without the intrinsic motivation to read, students may never reach their full potential as readers (Gambrell, 1996). Studies in recent years (Kush & Watkins, 1996; McKenna, Kear, & Ellsworth, 1995) have focused attention on reading motivation of young children, particularly on the low motivation of boys in reading. According to Kleinfeld (2006) the typical boy in the United States is a year and one half behind the typical girl.

Smith and Wilhelm (2002) conducted research that found gender differences related to motivation and reading achievement in preadolescent and adolescent students. The researchers concluded that girls learn to read earlier, comprehend narrative and expository texts better, and have higher estimates of their reading abilities than boys.

Summary

Literacy acquisition has been a major topic in educational literature. Learning to read could be considered the single most important skill a student will ever acquire. Even though a majority of instructional time has been spent on literacy instruction, many children still have continued to read below grade level. This discrepancy has sparked decades of research on how children learn to read, which instructional methods work most effectively, and which early skills that might predict later performance in reading.

CHAPTER 3

METHODOLOGY

Early literacy skills are different from but related to reading and develop along a continuum during the first 5 or 6 years of life and long before formal schooling (Lonigan, Burgess, Anthony, & Baker, 1998). These early skills, phonological awareness, phonemic awareness, letter naming, rhyme awareness, and concept of word were investigated in this study to determine which are strong predictors of reading skills. Prereading skills are strongly related to the ability to use phonics later on and are precursory skills for learning to read successfully (Adams, 1990; Hart & Risley, 1995). Morrison, McMahon, and Williamson (1993) claimed that individual differences in early literacy skills at the kindergarten level tended to be maintained or magnified over school years. Therefore this study compared third grade data to kindergarten level data to check for correlations.

Research Design

The purpose of this study was to investigate the relationship between a student's reading ability in third grade and his or her level of phonemic awareness in kindergarten. A second purpose was to identify specific prereading skills that best predict later reading success. The research methodology and design, research questions, hypotheses, participants, data collection, and data analysis are presented in this chapter.

This study used a quantitative research design to answer the research questions posed. Correlational methodology was also to investigate the relationships among variables such as early phonemic awareness and later reading ability.

Purposeful Sample

A purposeful sample was used for this research project. The purposeful sample was 244 fourth grade students enrolled in three primary schools in a school system in Southwest Virginia. All fourth grade students from the three schools that were continuously enrolled for 4 years at their home school were included in the study. Students who transferred from other counties or states do not have the required phonological awareness scores or the standards of learning score for this study and were excluded from the study. The three schools had similar demographics such as percentages of minorities, students with disabilities, and students of low socioeconomic status. All three schools are also primary schools that house only prekindergarten through fourth grade.

Data Collection

The Phonological Awareness Literacy Screening (PALS) provides a comprehensive assessment of young children's knowledge of the important literacy fundamentals that are predictive of future reading success. PALS is the state provided screening tool for Virginia's Early Intervention Reading Initiative and is used by nearly all the school divisions in the state. Development of the Phonological Awareness Literacy Screening was supported by the Virginia Department of Education through

Virginia's Early Intervention Reading Initiative. The PALS test is comprised of six phonological awareness subtests which make up a summed score. Students are tested in the following areas: beginning sound awareness, rhyming, letter identification, sound-letter relationships, spelling, and concept of word. The student's fall PALS score was used in this study.

The Virginia Standards of Learning examinations are administered to all students across the state of Virginia beginning in third grade. These examinations assess a student's knowledge of the four core areas, reading, mathematics, science, and history and social science in third grade through eighth grades. Scores from the third grade Virginia Standards of Learning examinations in reading were used in this study. Third grade students take these examinations during the last 4 weeks of the school year and scores are returned during the summer.

The Phonological Awareness and Literacy Screening is a comprehensive assessment created to test children's knowledge of fundamental literacy skills that are predictive of future reading success. No validity and reliability data are available on the instrument at this time. Because the assessment is used state-wide, efforts are taken to establish reliability and validity in the administration of the test such as the state providing and requiring test administration training to all prekindergarten through third grade teachers who are responsible for administering the test. Test-retest reliability was assessed in Fall 2002 with a sample of 473 students. In this study, teachers administered the PALS assessment a second time to a randomly selected sample of their students. Pearson correlations between scores on the two administrations were computed as an indicator of test-retest reliability. Test-retest reliabilities ranged from .78 to .95.

Reliabilities for PALS subtasks were determined for gender, socioeconomic status, race and ethnicity, and region using data generated from statewide samples from 1998 to 2007. For Fall 2008 and Spring 2009 Cronbach's alpha averaged .86 (range = .78 to .88) across the 10 decile groups of school level socioeconomic status. Three types of validity have been assessed through pilot studies and examinations of statewide PALS data over the past 5 years. Content validity was examined to ensure that the sample of items and tasks provides a relevant and representative sample of the content addressed. Special care was taken to select items that represent the subject matter being assessed. Special care was also taken to select items that represent the literacy subject matter being assessed. The predictive validity of PALS-K was assessed by comparing the scores from the fall with Stanford Achievement scores obtained during the spring of the same school year. Fall PALS-K Summed Scores and all PALS-K subtask scores were significantly correlated with spring Stanford-9 scaled scores. The correlation between fall PALS Summed Scores and spring Stanford-9 Total Reading scaled scores was .70. A pilot study of the predictive validity of PALS-K was conducted using discriminant analysis to assess the relationship between Reading SOL scores from spring of third grade and students' PALS-K scores, PALS scores from fall of second grade, and PALS scores from fall of third grade. The combination of these PALS scores resulted in a discriminant function that correctly classified 82% of students according to their pass-fail status on the SOL (Invernizzi, Meier, Swank, & Juel, 1997).

To obtain data for this study, I first requested permission from the superintendent of the participating school system. I then requested permission from the principal of each school selected for the study. When permission was granted, I obtained the Spring 2007

kindergarten phonological awareness and literacy screening scores as well as the Spring 2010 third grade reading Standards of Learning score for each fourth grade student. The data were given to me with no identifying information. A spreadsheet was developed to organize and record each set of student scores. Scores were kept anonymous by using a letter and number combination to identify each score.

Research Questions

Teaching a child to read is one of the most important jobs of an educator. The research conducted in this study was designed to provide helpful information to those who teach children to read. By investigating correlational relationships between prereading skills and later reading ability, teachers were able to fine tune their instruction, focusing more heavily on the skills that better predict later reading success.

1. Is there a significant difference in the mean score on the kindergarten Phonological Awareness Screening between male and female students?

Ho1: There is no significant difference in the mean score on the kindergarten Phonological Awareness Screening between male and female students.

2. Is there a significant difference in the mean score on the third grade Virginia SOL examination in reading between male and female students?

Ho2: There is no significant difference in the mean score on the third grade SOL examination in reading between male and female students.

3. Is there a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading?

Ho3: There is no significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading.

4. Is there a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for female students?

Ho4: There is no significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL Examination in reading, for female students.

5. Is there a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for male students?

Ho5: There is no significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL Examination in reading, for male students.

6. How accurately can reading ability in third grade as measured by the Virginia SOL Examination in reading be predicted from a linear combination of phonological awareness subtests (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) given in kindergarten?

Ho6: Reading ability in third grade as measured by the Virginia SOL Examination in reading cannot be predicted by a linear combination of phonological awareness (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) subtests given in kindergarten.

Data Analysis

The SPSS data analysis software was used for all data analysis procedures in this study. Independent samples t-tests were conducted for research questions 1 and 2 to compare the mean scores on each set of data. Pearson correlation coefficients were computed on the data set to evaluate whether a linear relationship existed and to answer research questions 3, 4, and 5. A multiple regression was conducted to evaluate how well a group of predictor variables predict the criterion variable of reading ability in third grade and to answer research question 6. An alpha level of .05 was used for all tests of statistical significance.

Summary

In summary, this study investigated the correlational relationship between a student's level of phonemic awareness in kindergarten and his or her reading ability in third grade using an ex post facto and correlational design. The study included fourth grade students from three demographically similar schools in a school system in Southwest Virginia. After permission was granted, students' scores were obtained from their Phonological Awareness and Literacy Screening in kindergarten and third grade reading Standards of Learning examination. These scores were analyzed using independent samples t-tests, Pearson correlation coefficient, and a multiple regression test. The research that was conducted in this study is designed to provide helpful information to those who teach children to read.

CHAPTER 4

DATA ANALYSIS

Learning to read is one of the most important fundamentals in education. It should be educators' top priority to diagnose and correct reading problems at the earliest level possible (UNESCO, 2006). Clay (1985) reported that children reading below grade level in the early grades continue to perform poorly in subsequent grades. Educators tend to agree that early reading deficiencies must be addressed but waiting until third grade may prove detrimental. The purpose of this study was to investigate the correlational relationship between a student's level of phonemic awareness in kindergarten and his or her reading ability in third grade. A second purpose was to identify specific prereading skills that best predict later reading success.

Demographics

The purposeful sample in this study was 244 fourth grade students enrolled in three primary schools in a school system in Southwest Virginia. All fourth grade students in each of the three schools were included in the study with the exception of those who had not been continuously enrolled for 4 years at their home school.

For this study test scores from two standardized examinations were obtained for each student, the spring 2007 kindergarten phonological awareness and literacy screening scores as well as the spring 2010 third grade standards of learning score in reading.

This study was guided by five research questions. SPSS was used to perform data analyses on five hypotheses. First two independent samples t-tests were conducted to

evaluate whether there was a significant difference in the mean score of the PALS summed score and the third grade SOL examination in reading between boys and girls. Next a Pearson correlation coefficient was computed to test the relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading. Finally a multiple regression analysis was run on four kindergarten predictor variables (rhyme awareness, letter recognition, sound knowledge, and concept of word) to determine how well this set of variables predicted reading ability in third grade.

Analyses of Research Questions

Research Question # 1

Is there a significant difference in the mean score on the kindergarten PALS between male and female students?

Ho1: There is no significant difference in the mean score on the kindergarten PALS between male and female students.

An independent samples t-test was conducted to determine whether a significant difference in the mean score of the PALS existed between male and female students. The mean score on the PALS screening was the test variable and the grouping variable was gender. The test was significant, $t(242) = 2.80$, $p = .006$. Female students ($M = 64.75$, $SD = 19.71$) tended to score higher than male students ($M = 57.20$, $SD = 22.36$) on the Kindergarten PALS screening. The 95% confidence interval for the difference in means was 2.24 to 12.87. The η^2 index was .03, which indicated a small to medium effect size. As a result of this analysis, Ho1: was rejected. Female students had a significantly higher

mean score on the kindergarten phonological awareness screening than male students.

Figure 1 shows the distribution of kindergarten phonological awareness scores for male and female students.

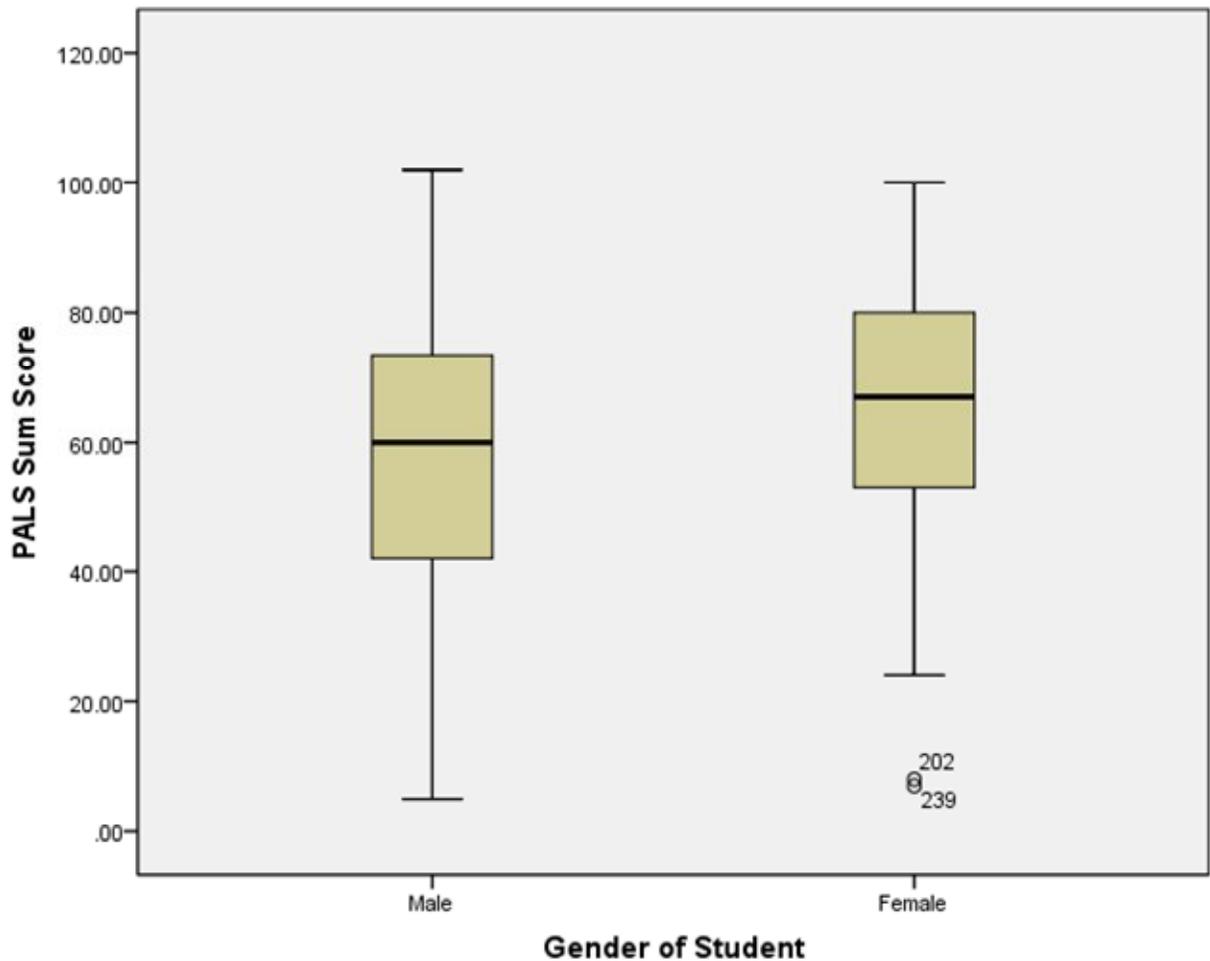


Figure 1. Distribution of Kindergarten Phonological Awareness Scores for Male and Female Students

Research Question # 2

Is there a significant difference in the mean score on the third grade Virginia SOL examination in reading between male and female students?

Ho2: There is no significant difference in the mean score on the third grade standards of learning examination in reading between male and female students.

An independent t-samples test was conducted to determine whether a significant difference in the mean score of the third grade standards of learning examination in reading existed between male and female students. The mean score on the third grade reading SOL test was the test variable and the grouping variable was male or female student. The test was not significant, $t(242) = 1.94$, $p = .053$. The η^2 index was .01, indicating a small effect size. Female students ($M = 492.78$, $SD = 59.46$) tended to have higher SOL scores than male students ($M = 477.87$, $SD = 60.51$). However, they did not score significantly higher. As a result of this analysis Ho:2 was retained. The 95% confidence interval for the difference in means was -30.04 to .223. Figure 2 shows the distribution of third grade Virginia SOL test scores in reading for male and female students.

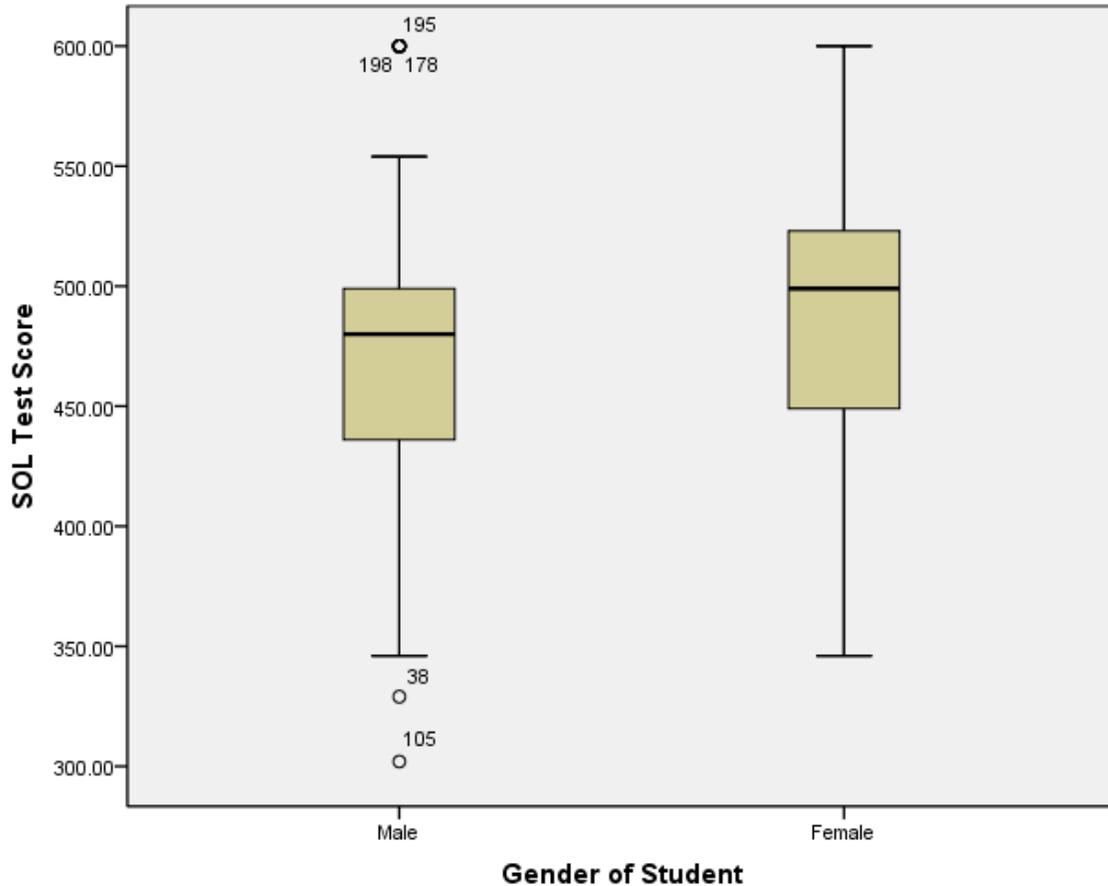


Figure 2. Distribution of SOL Test Scores for Male and Female Students

Research Question # 3

Is there a significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading?

Ho3: There is no significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading.

A Pearson correlation coefficient was computed to determine whether a statistically significant relationship existed between kindergarten students' PALS and

their reading ability in third grade as measured by the Virginia SOL examination in reading. The results of the analysis revealed a moderate to strong positive relationship between the PALS test and the third grade Virginia SOL examination in reading and a statistically significant correlation [$r(242) = .41, p < .001$]. Therefore $H_0:3$ is rejected. In general, the results suggested that students with a high kindergarten phonological awareness score also tended to have high scores on the third grade Virginia SOL examination in reading (see Figure 3).

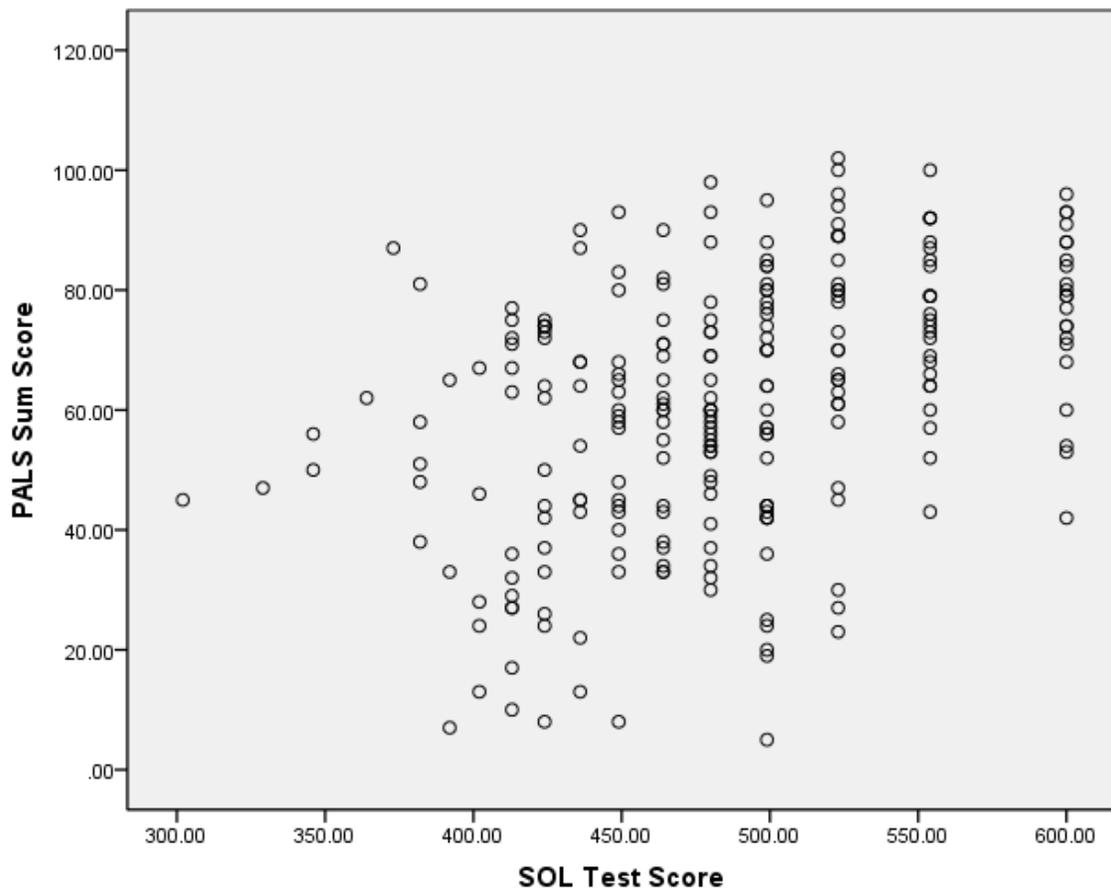


Figure 3. Scatterplot of PALS Scores and SOL Test Scores

Research Question # 4

Is there a significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading, for female students?

Ho4: There is no significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading, for female students.

A Pearson correlation coefficient was computed for female students' scores to determine whether a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for female students,.

For female students the results of the correlational analysis revealed a moderate positive relationship between the kindergarten PALS ($M = 64.8$, $SD = 19.7$) and SOL exam ($M = 492.8$, $SD = 59.5$) scores and a statistically significant correlation [$r(119) = .46$, $p < .001$] (see Figure 4). Therefore, Ho4 is rejected. In general, the results suggested that female students with high kindergarten phonological awareness scores also tended to have high scores on the third grade Virginia SOL examination in reading.

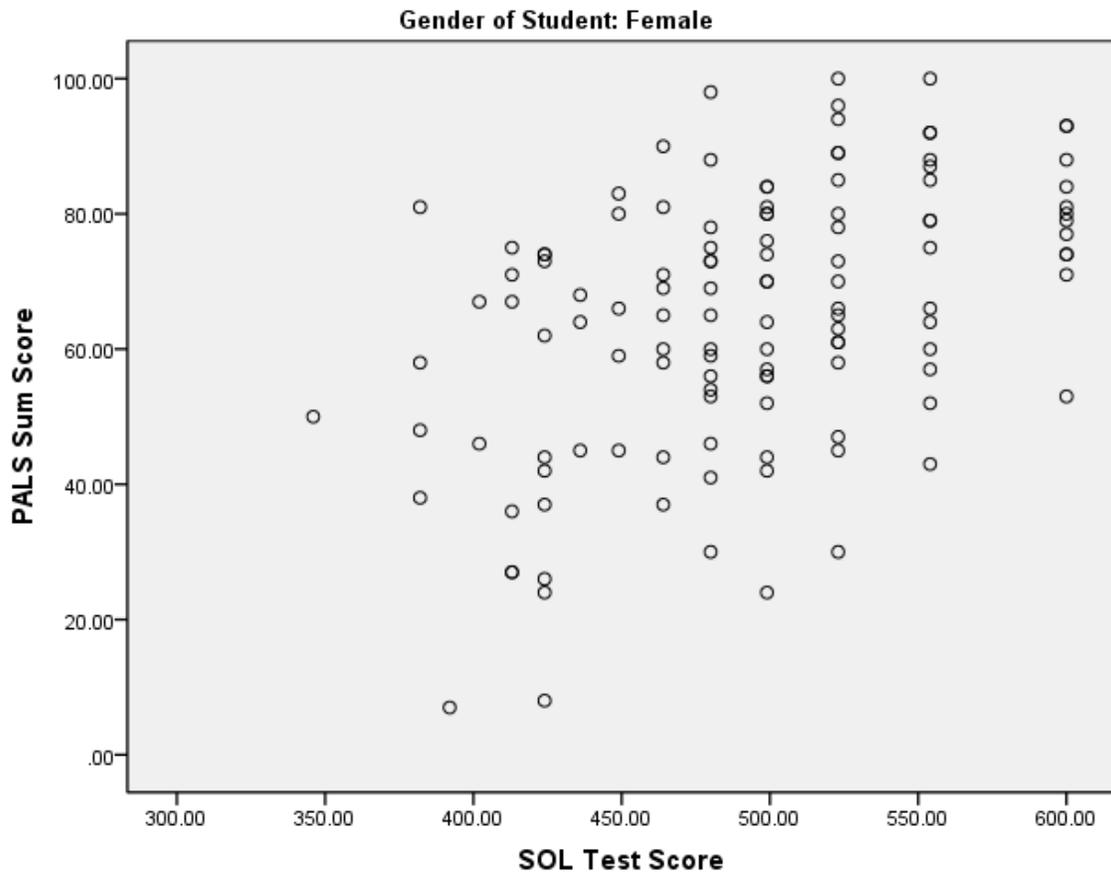


Figure 4. Scatterplot of PALS Scores and SOL Test Scores for Female Students

Research Question #5

Is there a significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading, for male students?

Ho5: There is no significant relationship between kindergarten students' PALS and their reading ability in third grade as measured by the Virginia SOL examination in reading, for male students.

A Pearson correlation coefficient was computed for male students' scores to

determine whether a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading, for male students.

For male students the results of the correlational analysis revealed a moderate positive relationship between the PALS ($M = 57.2$, $SD = 22.4$) and SOL exam ($M = 477.9$, $SD = 50.5$) scores and a statistically insignificant correlation [$r(121) = .35$, $p > .001$] (see Figure 5). Therefore, H_05 is rejected. In general, the results suggested that male students with high kindergarten phonological awareness scores showed no tendency to have high scores on the third grade Virginia SOL examination in reading.

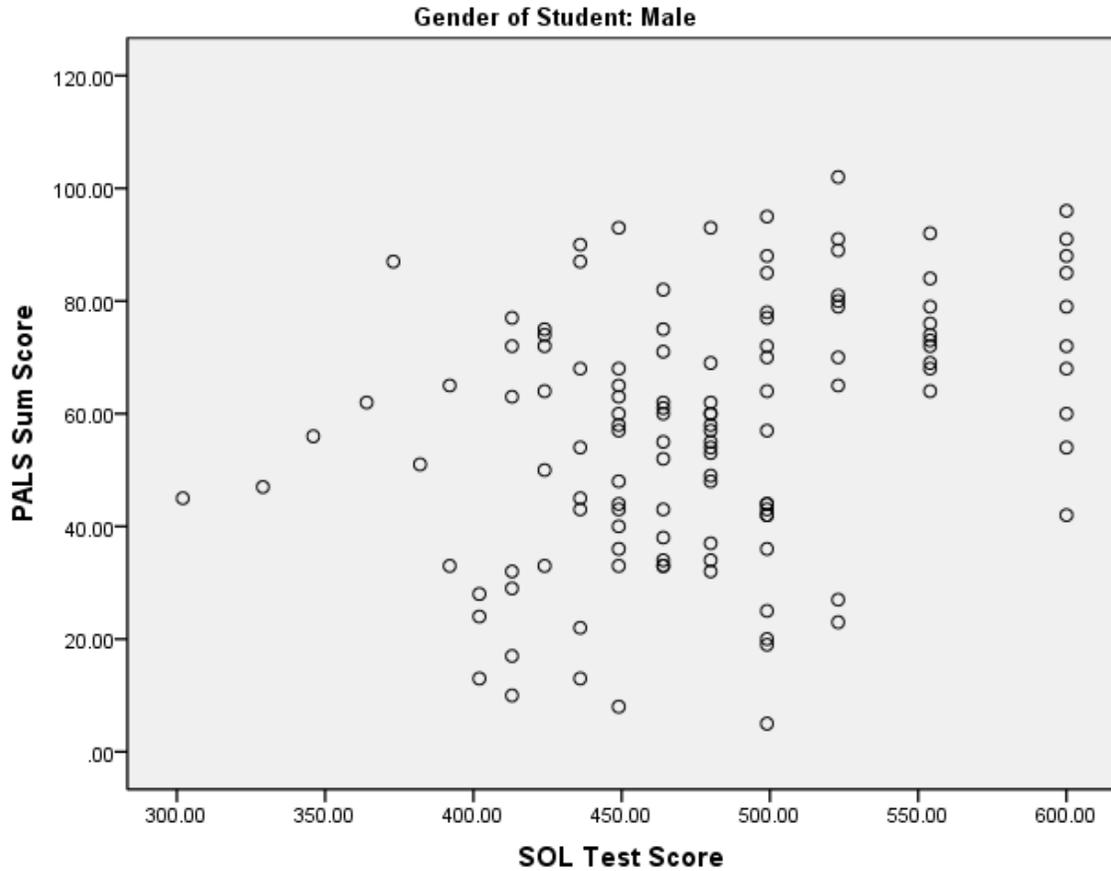


Figure 5. Scatterplot of PALS Scores and SOL Test Scores for Male Students

Research Question # 6

Can reading ability in third grade as measured by the Virginia SOL examination in reading be predicted from a linear combination of PALS subtests (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) given in kindergarten?

Ho6: Reading ability in third grade as measured by the Virginia Standards of Learning Examination in reading cannot be predicted by a linear combination of PALS (rhyme awareness, letter recognition, sound-letter relationships, and concept of word) subtests given in kindergarten.

A simultaneous multiple regression was conducted to evaluate how well a group of four variables predict the criterion variable of reading ability in third grade. The predictor variables were: rhyme awareness, letter recognition, sound-letter relationships, and concept of word subtests. The regression equation with all four phonological awareness predictors was significantly related to the reading ability in third grade index, $R^2 = .18$, adjusted $R^2 = .17$, $F(4, 239) = 13.30$, $p < .001$.

Table 1 shows the coefficients to indicate the relationship of individual predictors to students' reading ability in third grade.

Table 1

Coefficients of the Simultaneous Linear Regression Between Reading Ability in Third Grade and Predictor Variables

Factor	B	S.E.	β	t	p
Rhyme	4.753	1.416	.211	3.356	.001
Letter Recognition	.703	.931	.078	.756	.451
Sound Identification	1.158	1.023	.130	1.132	.259
Concept of Word	1.503	.794	.141	1.892	.060

The rhyme awareness score was the only predictor that was statistically significant ($p < .05$). Rhyme awareness score had a positive relationship to reading

ability in third grade (Rhyme, $p < .001$, $\beta = .21$). Students who had a high rhyme awareness score in kindergarten subsequently had a high score on the third grade SOL examination in reading. Therefore, H_06 is rejected.

Summary

Chapter 4 has presented the results of analyses and findings of the study. The data analyzed during this study has made it possible to identify relationships between reading ability in third grade and phonemic awareness in kindergarten.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR PRACTICE AND FURTHER RESEARCH

The purpose of this chapter is to summarize and explain the data analysis results of this study in relation to phonological awareness in kindergarten and reading ability in third grade and to make recommendations for future practice and research. Most children develop reading skills through their literacy experiences at home and in their kindergarten classrooms (Ehri & Roberts, 2006). Conversely some students arrive at school with deficiencies in quality preschool experiences that equip them with the necessary prereading skills they need. Clay (1985) reported that children reading below grade level in the early grades perform more poorly in subsequent grades. Research has also shown that if a student is not reading on grade level by the time he or she enters third grade, he or she may never read on grade level (Clay, 1985). Deficiencies in reading need to be addressed in the early grades because waiting until third grade may prove detrimental. At-risk students need to be indentified early and targeted for intervention. One way to do this is to evaluate the relationships between early prereading skills and later reading ability.

Findings

This study was guided by six research questions. First, was there a significant difference in the mean score on the kindergarten phonological awareness screening between male and female students? Second, was there a significant difference in the

mean score on the third grade Virginia SOL examination in reading between male and female students? Third, was there a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading? Fourth and fifth, was there a significant relationship between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading for female and male students respectively. Sixth, could reading ability in third grade as measured by the Virginia SOL examination in reading be predicted from a linear combination of phonological awareness subtests? There were four predictor variables in this study. Each predictor variable was derived from their score on each of the kindergarten phonological awareness subtests. The subtests consisted of rhyme awareness, letter recognition, sound-letter relationships, and concept of word.

The purposeful sample for this research was 244 fourth grade students enrolled in three primary schools in a school system in Southwest Virginia. All fourth grade students from the three schools who were continuously enrolled for 4 years at their home school were included in the study. Students who transferred from other counties or states do not have the required phonological awareness scores or the standards of learning score for this study and were excluded from the study. The three schools had similar demographics such as percentages of minorities, students with disabilities, and students of low socioeconomic status. All three schools are also primary schools that house only prekindergarten through fourth grade.

Research Questions

An independent samples t-test was conducted to determine whether a significant difference in the mean score of the PALS existed between male and female students. Female students were found to have a higher mean score of 64.75 than male students with a mean score of 57.20 on the kindergarten PALS screening.

An independent samples t-test was also conducted to determine whether a significant difference in the mean score of the third grade SOL examination in reading existed between male and female students. The test was not significant, indicating that male students tended to score about the same as female students on the third grade SOL examination in reading.

A Pearson correlation coefficient was computed to determine whether a statistically significant relationship existed between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading. PALS score and SOL score were found to be significantly related ($p < .001$) suggesting that students with a high phonological awareness score in kindergarten tended to also have high scores on the third grade Virginia SOL examination in reading.

Furthermore, a Pearson correlation coefficient was also computed to determine whether a statistically significant relationship existed between kindergarten students' phonological awareness scores and their reading ability in third grade as measured by the Virginia SOL examination in reading for female and male students. A statistically significant correlation ($p < .001$) existed between the PALS score and the SOL score for female students indicating that female students with high kindergarten phonological

awareness scores also tended to have high scores on the third grade Virginia SOL examination in reading. However for male students a statistically significant correlation did not exist between the PALS score and the SOL score. The results suggested that male students with high kindergarten phonological awareness scores showed no tendency to have high scores on the third grade Virginia SOL examination in reading.

A simultaneous multiple regression was conducted to evaluate how well a group of four predictor variables predict the criterion variable of reading ability in third grade. The predictor variables were: rhyme awareness, letter recognition, sound-letter relationships, and concept of word subtests. The regression equation with all four phonological awareness predictors was significantly related to the reading ability in third grade index, $R^2 = .18$ ($p < .001$). The rhyme awareness score was the only predictor that was statistically significant ($p < .05$). The rhyme awareness score had a positive relationship to reading ability in third grade.

Conclusions

Based on the data analyzed during this study, it is possible to identify relationships between reading ability in third grade and phonological awareness in kindergarten. The following conclusions were obtained from this study.

Female students scored higher on phonological awareness screenings in kindergarten than male students, suggesting that more female students than male students enter school with better prereading skills. Eliot (2010) found that girls excel in areas such as phonemic awareness due to their time spent talking, drawing, and role playing. However male students tended to score about the same as female students on the third

grade Virginia SOL examination in reading. These findings indicate that the gender gap in reading skills that exists in kindergarten tends to close by third grade. Coles and Hall (2001) found that boys generally prefer reading nonfiction and informational material. The amount of nonfiction and informational text increases in frequency by second or third grade which could explain the higher reading scores for males in third grade. Male reading scores were found to show great variance in both kindergarten and third grade. Reynolds et al. (1996) found that the variance for reading performance was greater for males than for females. Finally, a student's rhyme awareness in kindergarten serves as a good predictor of his or her reading ability in third grade. Many studies (Bradley & Bryant, 1983; Ellis & Large, 1987; Lundberg, Olofsson, & Wall, 1980) have identified the prereading skill of rhyme awareness as the best predictor of reading ability.

Recommendations for Practice

The following recommendations are presented to teachers, reading specialists, and principals regarding relationships between reading ability in third grade and phonological awareness in kindergarten.

1. Prekindergarten and kindergarten teachers need to place a strong emphasis on phonological awareness skills in classroom instruction particularly rhyme awareness.
2. Decision makers should consider scores from kindergarten phonological awareness screenings as valuable predictor data for later reading ability.
3. Students who perform poorly on kindergarten phonological awareness screenings should be identified for early remediation services in reading. =

Recommendations for Further Research

1. This study should be replicated using a larger sample from other regions of the state.
2. A longitudinal design should be implemented in order for this group of students to be tracked each year to see if phonemic awareness in kindergarten continues to be a predictor of later reading ability in subsequent grade levels.
3. This study should be replicated to include an additional factor of preschool experience.

Summary

The data analysis results of this study have made it possible to identify a relationship between reading ability in third grade and phonological awareness in kindergarten. The results indicated a significant difference in phonological awareness levels in kindergarten between male and female students but no significant difference in third grade reading ability between the two groups. Phonological awareness in kindergarten was found to be a predictor of third grade reading ability. Rhyme awareness was found to be the best of the four predictors of third grade reading ability.

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